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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,850	09/12/2003	Alexander Belokon	46633/264930	8546

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EXAMINER

HANAN, DEVIN J

ART UNIT	PAPER NUMBER
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3745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/661,850	Applicant(s) BELOKON ET AL.	
	Examiner Devin Hanan	Art Unit 3745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment dated 1/6/2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14, 17-19 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-12, 15, 17-19 and 21-23 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7 and 13 is/are rejected.
- 7) ☒ Claim(s) 4 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 4/27/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments, see amendments, filed 1/6/2006, with respect to air bearing added to claim 19 have been fully considered and are persuasive (see page 16, paragraph 5). The rejection of claim 19 has been withdrawn.

Applicant's arguments with respect to claim 1, 5 and 13 have been considered but are moot in view of the new ground(s) of rejection.

Examiner regrets that the indicated allowability of claim 5 in the previous office action is hereby withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. (U.S. Patent 4,472,107) in view of Wunderwald et al. (U.S. Patent 6,190,123).

Chang et al. disclose a compressor for compressing air and gaseous fuel, comprising:

a rotatable shaft (11);

a compressor wheel (35) mounted on the shaft, the wheel having a plurality of blades affixed thereto;

a bearing casing (21) defining an interior space;

a bearing mounted (12 ,13) in the bearing casing and rotatably supporting the shaft;

a compressor housing surrounding the wheel, the compressor housing defining a main gas flow path (34 to 39), the compressor housing having a fixed wall immediately adjacent to and spaced from a surface of the compressor wheel, said surface extending from a location adjacent the main gas flow path generally radially inwardly toward the bearing casing;

the compressor housing and bearing casing defining a leakage pathway (between 45 and 21) from the main gas flow path of the compressor into the interior of the bearing casing, at least part of the leakage pathway being defined between the surface of the compressor wheel and the fixed wall of the compressor housing (45 and 52); and

a sealing arrangement located in the leakage pathway, the sealing arrangement comprising a hydraulic resistance element (49) disposed between the surface of the compressor wheel and the fixed wall of the compressor housing, and a pressurized air supply duct (53, 54) leading through the compressor housing into the leakage pathway at a location between the bearing casing and the hydraulic resistance element, and wherein the leakage pathway includes a portion that extends from the hydraulic resistance element to the bearing casing and that is free of any further hydraulic

Art Unit: 3745

resistance elements (70 and 71 are part of one embodiment and are optional, col. 4 lines 48-58);

wherein the compressor is structured and arranged to compress a mixture of fuel and air fed into the compressor (the compressor is capable of compressing a mixture).

Chang et al. does not disclose the sealing arrangement is structured and arranged to prevent fuel from leaking via the leakage pathway into the bearing casing and thereby escaping into the atmosphere, by virtue of the sealing arrangement including a source of pressurized air that is free of fuel and that has a pressure exceeding that in the main gas flow path, said source being arranged to feed the pressurized fuel free air through the supply duct into the leakage pathway such that the pressurized fuel free air prevents fuel from flowing from the main gas path past the hydraulic resistance element.

However, Wunderwald et al. teach of a pressurized pathway that is capable of preventing air with fuel from flowing from the main gas flow path thru the leakage pathway (col. 4 lines 56-60) for the purpose of cooling the rotor (abstract).

Since Chang et al. and Wunderwald et al. are both from the compressor wheel art, the purpose disclosed by Wunderwald et al. would have been recognized in the pertinent art of Chang et al. It would have been obvious at the time the invention was made to one having ordinary skill in the art to add the pressurized air system of Wunderwald et al. to the compressor of Chang et al. for the purpose of cooling the rotor (abstract).

Regarding claim 2, the modified apparatus of Chang discloses all of the claimed limitations as discussed above and the seal is a labyrinth seal (col. 2 lines 64-65).

Regarding claim 3, the modified apparatus of Chang discloses all of the claimed limitations as discussed above and an oil supply duct (fig 1, 16).

Claims 5-7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. in view of Wunderwald et al. and further in view of Postuchow (U.S. Patent 5,816,784).

Regarding claims 5 and 13, the modified apparatus of Chang discloses all of the claimed limitations as discussed above, but does not disclose auxiliary blades mounted to the compressor wheel.

However, Postuchow et al. teach of auxiliary blades for the purpose of discouraging flow of fluid from the pump casing to the seal housing (col. 1 lines 35-39).

Since the modified apparatus of Chang et al. and Postuchow et al. are both from the compressor wheel art, the purpose disclosed by Postuchow et al. would have been recognized in the pertinent art of Chang et al. It would have been obvious at the time the invention was made to one having ordinary skill in the art to add the auxiliary blades of Postuchow et al. to the compressor of Chang et al. for the purpose of discouraging flow of fluid from the pump casing to the seal housing (col. 1 lines 35-39).

Regarding claim 6, the modified apparatus of Chang discloses all of the claimed limitations as discussed above and the seal is a labyrinth seal (col. 2 lines 64-65).

Regarding claim 7, the modified apparatus of Chang discloses all of the claimed limitations as discussed above and an oil supply duct (fig 1, 16).

Allowable Subject Matter

Claims 9-12, 15, 17-19 and 21-23 are allowed.

Claims 4 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

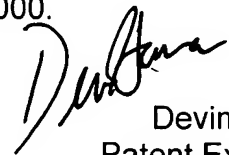
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devin Hanan whose telephone number is 571-272-6089. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on 571-272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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3/5/07